

STUDIES IN ISLAMIC CIVILIZATION

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the MUSLIM CONTRIBUTION to
the RENAISSANCE

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IIIT Books-In-Brief Series

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Studies in Islamic Civilization was published in complete form in 2010 and reprinted in 2011. It draws upon the works of Western scholars to make the case that without the tremendous contribution of the Muslim world there would have been no Renaissance in Europe. For almost a thousand years Islam was arguably one of the leading civilizations of the world spanning a geographic area greater than any other. It eliminated social distinctions between classes and races, made clear that people should enjoy the bounties of the earth provided they did not ignore morals and ethics, and rescued knowledge that would have been lost, if not forever, then at least for centuries. The genius of its scholars triggered the intellectual tradition of Europe and for over seven hundred years its language, Arabic, was the international language of science. Strange then that its legacy lies largely ignored and buried in time. In the words of Aldous Huxley, "Great is truth, but still greater, from a practical point of view, is silence about truth. By simply not mentioning certain subjects... propagandists have influenced opinion much more effectively than they could have by the most eloquent denunciations."

Studies in Islamic Civilization is a compelling attempt to redress this wrong and restore the historical truths of a "golden age" that ushered in the Islamic renaissance, and as a by-product that of the West. In doing so it gives a bird's eye view of the achievements of a culture that at its height was considered the model of human progress and development.

INTRODUCTION

Islamic civilization produced great achievements and the intellectual legacy of a faith that transformed the world. Spanning a greater geographic area than any other, across the eastern hemisphere from Spain and North Africa to the Middle East and Asia, it formed a continuum between the Classical world and the European Renaissance. Muslims today are in a strange position of being viewed through a lens that mostly depicts Muslim society as a backward culture. The popular historical account is estranged from documented reality that demonstrates that Islamic civilization at its height was the model of human progress and development.

Many works either minimize or completely overlook the presence and contributions of the entire Islamic civilization. This book attempts to redress this wrong and restore the historical truths of a "golden age" that ushered in the Islamic renaissance. Islam's brilliant contribution to science, art, and culture are systematically explored, with a detailed view of the great panorama of learning that formed the bedrock of a religio-humanistic vision that gave precedence to intellectual development and scholastic endeavor. This book speaks from a Muslim perspective while drawing upon the works of Western scholars.

Islamic civilization's achievements and positive contributions to the world and the European Renaissance have not received due recognition. This oversight is explained by a lack of relevant research, the uninspiring present condition of the Muslim world, and the Eurocentric approach in Western academic discourse. The studies pertaining to Islamic civilization to date fall into two main categories. The first trend in modern-day academia denies Islam's outstanding and far-reaching role in its service to medieval civilization and the subsequent development in the West.

The second academic trend recognizes Muslim contributions to the unfolding of Islamic and Western civilizations. These scholars have performed resourceful and painstaking fieldwork and have uncovered an immense number of treasures of medieval Islam. These scholars were clear that the Renaissance and modern Western civilization owe much more to Islamic civilization than has been acknowledged. They have also noted that Islamic civilization was neither dogmatic nor exclusive in its dealings with non-Muslims.

Nevertheless, the discourse of a segment of politically-oriented Western scholars emphasizes extremist views due to the events of September 11, 2001. This influential trend grossly understates the openness and creativity of Islamic civilization throughout history. This reading of Islam and its civilization contends there is no moderate Islam, and that Islamic history and traditions only offer bigotry, violence, and holy war. This book's historical perspective explains the errors and flaws in this reading of Islamic civilization, and demonstrates how Islam as a religion and law of the land has always sought peaceful co-existence with others. Islamic society in the medieval period sought unity in diversity by accepting the contributions of non-Muslims, borrowing freely from the preceding civilizations, and using this knowledge to build a progressive society.

Chapter One

Islam's Role in History

Islam formed a unique bridge between the civilizations of the East and the West. Muslim scholars rescued knowledge that would have been lost for centuries, and brought something new to light each time. In these bursts of creativity, Muslims made their own contributions to the world over many centuries. Muslims saw the quest for knowledge as a religious duty. These contributions stemmed from the unique features of a religion that conferred dignity on human beings.

Islam made clear that people should enjoy earth's bounties within moral and ethical boundaries, and also sought to delegitimize social distinctions between classes and races. Islamic civilization transcended geographical and temporal boundaries from Europe to Asia, and thus achieved unity among divergent peoples. The position of women improved in its communities. The Islamic way of life was responsible for the creation of Islamic civilization in all its achievements and influences.

Islam was one of the world's leading civilizations for a thousand years. Its language, Arabic, was the international language of science.¹ Yet many history books attribute achievements of Islamic civilization to borrowing from other civilizations. These historians prefer to devote their attention to the West as the only civilization of the Middle Ages, with a primary focus on Europe.² Their descriptions and judgments derive from texts dating from the seventh century onward, attacking Islam, the Qur'an, and Prophet Muhammad (SAAS).³ The historians dwell at length on Greece and Rome and the early development of Christianity, summarize the Islamic period, and make an enormous leap to the Renaissance.

Muslims borrowed from preceding cultures, as did all non-Muslim civilizations, then made their own contributions and created a unique civilization. In turn, other civilizations, especially the nascent civilization of Europe, borrowed ideas and materials from the Islamic civilization. Islam produced another historical continuation by supplementing the development of Judaism and Christianity, and provided the foundation of the next dominant civilization: the West.

Chapter Two

Learning and Islamic Civilization

In its emphasis on learning,³ Islam began to fill a chasm that had been widening in the world of the 7th century. The major civilizations had waned, and Europe was in its Dark Ages, while Islam's geographic expansion was matched by an intellectual and cultural fervor. The Qur'an has proved an important stimulus to learning. The word *'ilm* (knowledge) occurs in the Qur'an about 750 times, one of the highest word counts in the text and one of the most repeated words in the Traditions of the Prophet Muhammad. In addition, the Qur'an clearly distinguishes humans from the rest of creation by their ability to reason.⁴ The language is rich in its descriptions of scientific concepts and other areas of knowledge. The Qur'an's language was, and still is, repeated via attentive recitation and heard throughout a Muslim's life. The great importance of classical Arabic, the linguistic basis of Islam and its civilization, needs more emphasis than it has received in the West. During Europe's Middle Ages, Arabic dominated the Muslim world and was present in Europe. It was used in some European

³(SAAS) – *Ṣallā Allāhu 'alayhi wa sallam*. 'May the peace and blessings of God be upon him.' Said whenever the name of the Prophet Muhammad is mentioned.

universities until Latin replaced it. The dictionary and basics of Arabic grammar also served as a resource for Jewish philology.

Almost from its inception, the Muslim community considered the ability to read as one of its major needs, and established schools of all kinds, while in Europe literacy was a monopoly of the clergy.⁵ This was a unique society with widespread focus on literacy. Muslim scholars in the early centuries of Islam strongly believed that diligence, knowledge, and piety improved life on earth and in the Hereafter. Learning was emphasized in the Qur'an and by the teachings and practices of the Prophet Muhammad and his immediate Successors.

Chapter Three

The Establishment of the First Muslim Community

The first Muslim community was a melioristic society, in that Muslims changed their way of life in response to revelations of the Qur'an and the behavior of Prophet Muhammad. These elements influenced all areas of life. For example, the Qur'an emphasizes the importance of working in harmony with nature and enjoying the beauty of God's world. Islam also gives humans a high status rather than sin at birth or reincarnation. The Qur'an describes the human body as a miracle that can acquire divine qualities.⁶ In short, God elevated humankind. The Qur'an states, "We have conferred dignity on the children of Adam" (17:70).

The Prophet exemplified reason and creativity and the other teachings of the Qur'an. Muhammad, born in Makkah in 570 CE, earned a reputation for being trustworthy in his personal and business life. He received his first revelation in 610 CE and preached to his fellow Makkans, who persecuted him until his migration to the future city of Madinah. This event, al-Hijrah, marks the start of the Islamic calendar and the establishment of the first Muslim community. After several wars the Prophet and his people conquered Makkah and established it as the center of Islam. The Prophet's vision guided this new civilization and jihad, or striving towards a worthy goal, was the tool to achieve that. The mosque became the center of community, education, and government, and a system of taxation and Muslim charity were developed to support the poor.

Prophet Muhammad was a humble and modest leader who lived normally and insisted that people, including women, be treated equally. This development was remarkable for its time, when fathers often considered the birth of a daughter to be a disgrace and frequently committed infanticide. The Prophet stated that women could keep their maiden names upon marriage and would not be under their husbands' guardianship. Men were restricted from having innumerable wives and women were given the rights to divorce, alimony,⁷ and child support.⁸ Women could also own and control property and wealth.⁹ These developments were far ahead of their time.

With the expansion of Islam in all geographic directions, there was a need for common understanding in the form of law. Four scholars were the original founders of Islamic law: Abū Ḥanīfah, Mālik ibn Anas, Muḥammad ibn Idrīs al-Shāfiʿī, and Aḥmed ibn Ḥanbal. The first and most eminent, Abū Ḥanīfah, used the Qurʾān as the basis for his school of law, and he diligently determined which Traditions of the Prophet were authentic. His approach to Islamic law was humanistic, and his students became authorities on jurisprudence. Islamic law was established and came to form the foundation of Islamic civilization.

Chapter Four

The Islamic World Order

Within a century of the advent of Islam, Muslims reached North Africa and Spain in one direction and China and Indonesia in the other, gaining an impressive number of conversions. First, Muslims responded to their enemies with surprising zeal, given they were often outnumbered by more established civilizations. Also significant for the future of the Muslim world was how the peaceable communities behaved toward the Muslims. Jews and many Christians welcomed them because of the persecution they had suffered from the Byzantines.¹⁰ And in their ruling, Muslims were fair, for the Prophet admonished them to "deal gently with people" of other countries.¹¹

Muslims did not destroy the places they conquered, nor put men to death or enslave women and children. Their armies did not occupy cities but built their own tent cities and military garrisons in the vicinity, some of which became cities in their own right, like Cairo.¹² Baghdad¹³ was created for the expansion of learning and became the first major Muslim intellectual capital. Three out of four of the

founders of the schools of Islamic law lived and worked there, and Baghdad was a capital for the Abbasids, the longest-reigning dynasty in Islamic history. The Mongols destroyed the city and its libraries in 1258 CE.

Despite the view that Islam was spread by the sword, Muslims were a minority in countries under Muslim rule, such as Iran, Iraq, Egypt, Tunisia, and Spain.¹⁴ Muslims remained a minority under Muslim governments throughout their rules in countries such as India and Sicily.¹⁵ Overall, Muslim rulers did not disturb Jews and Christians living in their dominions. Many conversions happened more than a century after the conquests.¹⁶ Islam spread to Indonesia, the largest Muslim country in the world, with no battles or conquests but via merchants and Sufis.¹⁷

When Mongols overran and destroyed a significant part of the Muslim world, the same Mongols converted to Islam voluntarily. Mongol descendants created Islamic civilizations and cultures of their own, such as the Mughal. Muslims' civilized behavior is most evident in their treatment of Jews during their persecution by Christians during the early decades of Muslim expansion. Jews who fled Christian persecution sought refuge in Muslim countries. In Spain, Muslims in many instances appointed Jews to govern their regions. In other Muslim countries, Jews retained their own communities and lived according to their own laws. They also participated in Muslim life and government and academic institutions. Jewish scholarship in religion and philosophy achieved some of its most significant advances under Muslim rule, with most scholars clustered around the capital cities. Muslim Spain was the intellectual center of Judaism.

Chapter Five

Islamic Civilization in Europe and West Asia

The Muslim world expanded even further when the Islamic empire rapidly gained full command of the oceans. For centuries, Arabs had traveled in boats and ships and transported merchandise from port to port. Muslims developed their navigation skills and added the rudder, which the West encountered during the Crusades, and then improved the astrolabe, which they acquired from the Greeks. They also gained the magnetic needle from the Chinese¹⁸ and developed the compass.

Muslim navigation developed rapidly and a well-equipped navy by the time of 'Uthmān, the third Caliph, resulted in eventual control of the Mediterranean. Muslim ships later moved to trade with India and China, and down the east coast of Africa. The English word *admiral* derives from the Arabic for commander (*amīr*).

After Spain and Sicily, Muslims made no further efforts at major conquest and expansion. Islamic civilization had a significant impact on Sicily, in the arts, learning, and agriculture. Muslims ruled there for two hundred years. Under King Roger I, the island's administration remained in Muslim hands, as did trade and agriculture, a fusion that created a Christian-Islamic culture. Sicily continued as a Muslim culture during the reigns of Roger II and Frederick II, and Muslim expertise in shipbuilding and sailing helped Sicily ascend as a leading maritime power during the reign of Roger II.¹⁹ Frederick II had an extraordinary relationship with the Muslim world to the east, and Muslim rulers were his close friends, an enthusiasm that brought him enemies in Europe.²⁰

Muslim merchants and sailors traveling worldwide produced another major Muslim contribution to geography: travel writing and records, also contributed by Jews and Christians traveling in Muslim lands. Meanwhile, Muslim conquests continued into Asia: India, southern Russia, and southwestern China. Muslims created a postal system to communicate with these farther reaches, and improved it during the Abbasids with Baghdad as its center. Such advances and explorations were in keeping with Qur'anic verses and the Hadith (sayings) of the Prophet.

Muslims were open to other cultures and learned from them. Wherever it ventured, Islam initiated a milieu of civilized life. Muslim influence was seen in many towns and around the world. Pastoral regions across central Asia became Muslim owing to their proximity to trade routes. Central Asians and Sufis brought Islam to those living away from these routes, until the religion spread both north and east. Villages in the Muslim world were therefore not as isolated as those in other parts of the world. The most important contact with the cities was from teachers of religion. Islam's conquests were not like those of other empires, for Muslim rule was largely benign. Muslims helped to enhance life in the countries where they settled, increasing trade and engendering learning.

Chapter Six

Trade

The Arabs had been traders for centuries before Islam, particularly in the harvesting and sale of frankincense along the Incense Road, which passed through Makkah. Muslims became enthusiastic traders and merchants. Except for early battles in Egypt and the north Mediterranean, trade and piety took the religion and its followers to sub-Saharan Africa, where Muslims engaged in trade and augmented caravan routes. This focus contributed to the rise of Islamic civilization worldwide. The combination of commercial savvy, religious faith, and cultural openness was a potent force for growth in the Muslim world. Muslim merchants effectively bridged the areas of two major powers — Persia and Byzantium — and improved commerce and increased wealth on existing trade routes and in conquered areas.

Muslims who settled in various parts of the world brought money and investments and developed into consumers as well. Remarkably, non-Muslims profited from the Muslims' enormous enterprise, even in rural areas, and Muslims likely enjoyed a higher standard of living than was prevalent under the Byzantines and Persians. Also enhancing trade was the social status of traders in Muslim countries. Merchants belonged to society's intellectual level and sent their children to universities, and craftsmen were highly respected.

With the advent of Islam, the Incense Road was protected by Qur'anic injunction,²¹ and also became known as the Pilgrimage Road. Trade was so important to Muslims that items could be bought and sold during the pilgrimage to Makkah, so the city became a peaceful center of religion and international commerce.

Muslims increased trade in Africa beyond historic proportions, regularly crossing the Sahara and bringing Islamic civilization to Africa. The extensive route stretched from the western Sahara to eastern Africa, with the exception of the sub-Saharan interior. Islam spread with trade until more than half of Africa was Muslim, and the continent's regions were separated only by language. Conversions to Islam in Africa made an enormous difference to trade and the Africans were soon assimilated and actively participating as traders. Mediterranean ports were developed for trade with Europe and connected with various caravan routes.

Similar to the early encounter with Africa was the early Muslim contact with China. Many traders settled in China and created a sizable Muslim population there, leading to conversions among the Chinese and eventual acceptance by the Mongol rulers. Muslims used another trade route, the Silk Road, which was used to transport silk from China in ancient times. Muslim traders improved the route and made it safer, while taking advantage of the sea-going trade between Persia and China that existed from pre-Islamic times. On land, the earliest contacts between Muslims and Chinese occurred in western China. In Canton, the Muslim population flourished and was given its own judge in Islamic law.

Trade increased between the Chinese and Muslims, and China benefited from Muslim advances in shipping and navigation. And along the "monsoon routes" through India and China were numerous examples of the amicable relationship between merchants and the local communities. Muslims also facilitated the link between China and the West, so that merchants could travel safely and easily from the Far East through the Mediterranean to Muslim Spain.²² This new trading unity persisted through the centuries, even during times of war such as the Crusades, and included the Europeans. Muslim trade improved the continent of Europe, helping it to change from a conglomeration of small feudal pockets to a vast area of international trade. This together with the learning acquired from Islam helped create the Renaissance.

Chapter Seven

Agriculture and Technology

Agriculture was a central element of Muslim trade and another determining factor in the economic and cultural expansion of the Muslim world. Little of this history is known in the West due to distorted and stereotyped notions of the world of Islam. In fact, Muslims were very knowledgeable and helped expand available agricultural products as well as introduce new ones, such as alfalfa. They implemented some worthwhile changes that increased output and strengthened economies. These innovations included the introduction of higher-yielding crops, more specialized land use, and upgraded irrigation systems. The major effects were in the production of fruit, vegetables, rice, grains, sugar cane, palms, and cotton.²³

Muslims carried agricultural products and cultivation methods into

Muslim Spain, leading to major economic growth and export to the Middle East and Asia. They brought fruit originating in Asia, such as citrus, bananas, and mangos, into other countries and farther west into Spain. They cultivated and spread the watermelon and introduced three vegetables in places beyond their origin: spinach, eggplant, and artichoke. Muslims contributed to the widespread cultivation of other food products such as hard wheat, sorghum, and rice, and in many cases to developing new varieties and increasing cultivation. Linguistics show a strong possibility that Muslims brought pasta²⁴ to Italy. Muslims were responsible for extending rice consumption, helping it become a staple diet, and brought coconuts and dates westward. The strongest linguistic evidence of Muslims transporting an agricultural product to the West is the origin of the word "sugar," which derives from the Arabic *sukkar*.

The cotton industry was also developed in the Muslim world. The word 'cotton' comes from Arabic and cotton became a popular and important textile under the Muslims, with wide cultivation in most Muslim countries and into Europe. Its distribution grew into a major trade with a hub in Baghdad.

All the agricultural products existed in Asia and Africa for centuries before Islam but this civilization made all the difference in their variety and distribution. Islamic civilization diffused them to many parts of the world. As demonstrated, Islam has engendered individual and community development and improvement, just as the earlier civilizations of Egypt, Mesopotamia, and China were devoted to growth rather than expansion.

Muslim government also facilitated the movement of people and products with its laws, common currency, and weights and measures, as well as a network of roads and caravan routes. Muslim engineers advanced the development of irrigation systems as well as other technologies such as developing clocks and windmills, and distillation, glassmaking, perfume-making, carpets, and more. In all, the Muslim empire exerted a massive influence over the commercial lives of Europeans, Africans, Arabs, and Asians for many centuries. Muslim success in spreading religion and culture set the stage for economic expansion. Friendliness in trade dealings allowed Muslim techniques, products, and language to penetrate various areas of the world.

Chapter Eight

Flowering of Islamic Learning

As the Muslim community grew, so did its acquisition of knowledge, and its efforts gained momentum during the finest century of the Abbasid Caliphate. During this time Muslims began writing books, primarily on the Qur'an and other religious subjects including biography of the Prophet. This period saw the greatest number of translations into Arabic of work from various nations, and from languages such as Greek and Persian. Arabic later became a language of instruction in Western universities, and Iranian Persian gained numerous Arabic words.

Institutions of learning and libraries such as those at Jundishapur in Iran furthered scholarship during the Muslim era, as did vast individual collections in homes. Caliph Al-Hakam II of Spain had 400,000 books in his library. Institutions of higher learning such as Al-Azhar University in Cairo had established academic traditions still in practice today, especially in the West.

Caliph Hārūn al-Rashīd was the first caliph to become a world statesman. During his reign, Baghdad earned the distinction of being the heart of the Golden Age of Islam. Al-Rashīd's popularity around the world led to his casting as the legendary figure in *The Arabian Nights*. After studying under such teachers, al-Rashīd's son and successor al-Ma'mūn excelled in law, literature, philosophy, rhetoric, and the sciences. When al-Ma'mūn became Caliph he founded the House of Wisdom in Baghdad, which attracted scholars from around the world and became the center of research, astronomy, and more translations from Greek, Syrian, Persian, and Sanskrit works. Greek works in their Arabized versions eventually reached Latin Europe, reawakening interest in Aristotle and Greek texts. At the time of translation, there was no West to speak of, nor the idea of a "classical Greece."

Women excelled in acquiring knowledge in Qur'anic studies, law, theology, the arts, and medicine. Midwives were in demand although women studied other branches of medicine and also became surgeons and physicians. Many women achieved prestige in learning and other fields. Their positions included 17 rulers and administrators, 9 orators, 4 who built mosques and other public institutions, 42 theologians, 23 musicians, and 76 poets. The wives of the Caliphs competed with one another in poetry writing.²⁵

Imam al-Ghazālī was an exemplar of learning and experience at this time and the greatest scholar of Islamic theology. Ibn Khaldūn, the founder of sociology and a pioneer in the social sciences, was another major intellectual with distinguished status in history. Arnold Toynbee describes his *Muqaddimah* (Prologue, a monumental work on universal history) as a philosophy of history that is the greatest work of its kind.²⁶ Ibn Khaldūn's perspective is vast, from the Creation to the events of the previous years, including events from Biblical, Persian, Greek, and Roman times, as well as the history of the Arabs.

The use of Arabic in instruction at Western universities continued what had already been available to scholars from the West, particularly in the Muslim learning center of Cordoba. Western scholars were by then emerging on their own, moving away from Church-controlled learning institutions. The genius of Islamic civilization is demonstrated in how it utilized the learning it acquired from other cultures, created its own intellectual milieu, and made its own contributions to world knowledge. Intellectual activity was one constant throughout Islamic civilization.

Chapter Nine

The Sciences

The Qur'an strongly emphasizes the beauty of nature and presence of God's miracles in the physical world. In many places the Qur'an references nature and elements of science and connects these with God's creation, even encouraging scientific research.²⁷ The Qur'an draws attention to evidence from the natural world and emphasizes *taqdīr*, or "measure": the balancing of the extremes of quantity and quality while neglecting neither.²⁸

Early Muslim scholars had already concluded the earth was round, based on their interpretation of a description in the Qur'an. Europeans refused to accept this fact well into the Renaissance, insisting the earth was flat.²⁹ In Muslim Spain, Muslim and Jewish astronomers rejected Ptolemy's theories outright in favor of Aristotle's works. Muslim astronomers corrected Ptolemy's planetary model to conform to Muslim almanac tables, and acknowledged the existence of other planetary systems.³⁰ Muslims also calculated circumferences using a *pi* well before they knew of Greek geometry.

During their conquests Muslims preserved Byzantine and Persian scientific institutions. Jundishapur became a science center for the Muslim world and its scholars came to Damascus, the Umayyad capital. Islamic science dominated the world for centuries and flowered during the Abbasid period of rule. Scholars from India, the Byzantine empire, and Persia gathered in Baghdad to learn from Muslim scholars. All scholarly materials were written in a language new to the sciences. Everything was translated into Arabic before it was interpreted, which led to new terminologies and greater creativity.

Advances in astronomy greatly assisted travelers, who needed to know the positions of constellations and movements of stars to establish a route to follow and to calculate the time. The moon was also significant in the lives of Arabs, who demarcated 28 successive groups of stars known as "lunar stages." The position of the moon against these stages revealed the season of the year.³¹ Muslim Spain taught the West that the earth is a sphere, and passed along other valuable work such as astronomical tables.

Muslim science of chemistry developed a century and a half after the advent of Islam. Muslims made significant advances in mathematics, as well, with Muhammad ibn Musa's algorithm and development of algebra, geometric solutions, degree measurements, and trigonometric tables.³² The Islamic sciences developed owing to the civilization's open-ness to the achievements of other civilizations, especially the sciences in Persia, India, and ancient Greece. The translation movement encouraged by Muslim rulers played a significant role, and the Islamic sciences went on to influence the Renaissance.

Chapter Ten

Medicine

During the first years of Islam, China, India, Greece, and Persia excelled in medicine. Greek scholars settled at Jundishapur, Persia's advanced learning center, which contributed physicians to the Arab and Persian worlds. Some of these physicians were contemporaries of the Prophet Muhammad, who also gave common sense advice regarding illnesses, healthy eating habits, and hygiene. As the study of medicine developed in the Muslim world, subsequent caliphates relied on physicians from Jundishapur for medical advice, such as court doctor Hunain ibn-Ishāq from the 9th century CE. Hunain translated Greek

works into Arabic, wrote a hundred or so medical works that were influential in the Muslim world, and taught future influential physicians.

In the Abbasid era, all scholars gained some medical knowledge and many became polymaths. The atmosphere was conducive to learning and the scholars were highly esteemed. In the early 9th century CE Baghdad had 860 licensed physicians and many hospitals and schools.³³ An important period in the history of Islamic medicine covered three great physicians, writers of major texts, and philosophers: al-Rāzī, al-Majūsī, and Ibn Sīnā. Al-Rāzī's work signaled the maturity of Arabian medicine, and his most significant contribution was to distinguish smallpox from measles. He produced over 200 books, half of them on medicine, including a 10-volume treatise on Greek medicine.

Abū 'Alī al-Ḥusayn ibn Sīnā (Avicenna) was the most highly recognized of Muslim scholars and a prominent medieval philosopher. Muslim medicine reached its pinnacle of achievement with his works and medical talents. Ibn Sīnā's eminence in medical history rests on his masterpiece, *al-Qānūn fī al-Ṭibb* (*The Canon of Medicine*), known in the West as *The Canon*, in five volumes.³⁴

During the early centuries of Muslim Spain, scholars aspiring to become physicians traveled to Baghdad, Cairo, Damascus, and Iran to acquire knowledge and experience at universities and hospitals. Later, Muslim Spain established its own universities with centers of medicine and philosophy, which facilitated the flow of Muslim expertise to the rest of Europe in the 12th century CE. The most famous Andalusian Muslim scholar was Ibn Rushd, or Averroes. He influenced the West in philosophy but also excelled as a judge, physician, and author of a comprehensive medical encyclopedia. Edward Browne writes that both Arab and non-Arab Muslims made the largest contribution to the body of scientific doctrine that they inherited from the Greeks regarding chemistry and medicine. As a result, Muslims considered chemistry and botany more useful in the preparation of medicines than as separate disciplines. Medical and pharmaceutical knowledge spread throughout the Muslim world owing to scholars traveling to the exceptional medical schools to learn from masters.

Muslims were noted for their hospitals and were the first to invent the kind of efficient hospital the world knows today. In addition to inventing the pharmacy, Islamic civilization produced pharmaceutical terminology and practices that transferred to European medicine, such

as methods of medication preparation. Muslim medicine was influential and far-reaching, and the Islamic paradigm of knowledge of the medieval period was thorough and comprehensive in its focus.

Chapter Eleven

Arabic Literature

Literature and art have been two significant constants throughout Islamic civilization. Muslim creativity elevated them as human achievements, and included creations from Muslims in non-Muslim countries. The basis of Muslim literature was its language and how it was used. Each culture has distinctive forms, metaphors, symbols, and motifs, and this is especially true of Islamic culture. Muslim literature reflects a Muslim ethos and has distinctive features: knowledge of Qur'an and Islam, and pre-Islamic literary traditions such as poetry, oratory, tales, and tribal themes that often combined historical facts with legends and lives of prominent historical figures. The great historian Ibn Khaldūn noted that Abū Al-Faraj's *Book of Songs* "comprises all that [Arabs] had achieved in the past of excellence in every kind of poetry, history, music, et cetera."³⁵

The protagonists in pre-Islamic stories and legends were kings as well as tribal heroes. Bedouin stories were told in verse, so singing poetry in praise of desert heroes became a tradition. Arabs highly regarded poetry and the most famous was *Mu'allaqāt* (*The Seven Odes*).³⁶ Many Arabs still memorize and recite the entire volume today. Later, as Islam influenced literature, the Qur'an did not prevent poets from pursuing their skills, even during the life of the Prophet. However, the first four Caliphs showed greater interest than the Prophet in poetry, preferring works rooted in "noble values" and Islamic morality.³⁷ The Umayyad era led to greater creativity among poets and fluid language, including the *ghazal*, a new form of love poem. Love poetry of pre-Islamic times was written again after the coming of Islam and became part of music and song under the Umayyads in Makkah and Madinah. Love poetry tended to be ambiguous rather than direct in theme.

There was development in the writing of prose although oratory was still the primary means of expression in regions where literacy was just starting to spread. Old legends were written down although most early recorded works were historical. The most popular narratives were stories of the early wars of Islam, and were often embellished. The

outstanding prose work of the time was a biography-history of the Prophet Muhammad written by Ibn Ishāq and based on interviews with people who knew of the Prophet from information handed down from relatives or Companions. His method of a chain of authorities leading back to the time of the Prophet was also used for the compilation of Hadith, also known as the Sunnah, "the way of the Prophet," which is, after the Qur'an, the most important religious guidance for Muslims.

Most prose, such as hero epics, was written during the 500 years-long Abbasid era and developed under a more sophisticated and cosmopolitan culture engendered by the Caliphate. This prose challenged poetry's dominant status. A distinction should be made between the Arabic-Islamic literature of the Umayyad era and that of the Abbasid era. Abbasid rule, especially the first half, made a large difference to literature, philosophy, the sciences, and arts. Literary prose dominated, though poetry was still held in greater esteem, and was enhanced by more learning and wider contact with other cultures, especially that of Persia.

Of all works from this early literary period, the story collection *A Thousand and One Nights* was the most popular and famous. Many of the stories were translated from Persian, and combined with bedouin stories and Arab folk songs, often to become teaching stories for Muslims. This process affected the organization of the tales and their deeper meanings.³⁸

Increasing interest in prose style led to a new form of composition called the *maqāmāt*, a dramatic genre with innuendos and double entendres. Aḥmad al-Hamadḥānī's *Maqāmāt* has been considered, since its inception, to be next to the Qur'an as a treasure of the Arabic language.³⁹ During the Abbasid era, poetry was abundant, with broader content, techniques, and style than before.

Chapter Twelve

Persian Literature

Iran is the greatest contributor to the civilization and culture of Islam outside the Arab world. Numerous scholars of Iranian origin are included in the histories of Arab civilization because they wrote in Arabic. After the revival of the Persian language, Persian literature emerged and soon achieved its own dignity and eminence. The golden

age of Persian literature is one of the most remarkable periods in the history of Iranian and Islamic culture. The works of illustrious poets such as Rūmī, Sa'dī, and Ḥāfiẓ have been translated into numerous languages and were appreciated by prominent Western authors.

Although both Arabic and Farsi are rich languages, Arabic was largely oral at the beginning of Islam, whereas Farsi already had an extensive recorded literature, including the epic, a genre that became part of Islamic literature. The coming of Islam changed the Persian language, replacing the Pahlavi alphabet with Arabic script and additional consonant sounds. Arabic and the Qur'an further enriched existing Persian vocabulary.⁴⁰ Muslims, especially the Abbasids, borrowed from and contributed to the culture of Iran.

While Iranians translated into Arabic works from other languages, the Arabs gave Iranians part of their vocabulary, the religion of Islam, and their forms of poetry. The Arab *qaṣīdah* was a dominant early form among the Iranians in its use as a panegyric, and Iranians fashioned a separate lyric format of *ghazal*. A third poetic form created by the Iranians was the *rubā'īyyah* or a quatrain, made famous by English translations of works by 'Umar al-Khayyām. Despite the limitation to four lines, it was a vehicle for much Persian poetry. The Iranian *mathnavi* was a series of two lines connected by a rhyme, and some works in this form extend into thousands of lines, like Rūmī's *Mathnavi*.

The Persian literary prose style developed early during the translations from Arabic. Farsi (Persian) did prove to be of greater value as the language of poetry and therefore dominated the golden age of Persian literature, with one poet succeeding another during 500 years. Their high esteem continues today in Iran. World-renowned Iranian poets include Firdausi, whose *Shahnama* totals around 60,000 couplets and is considered the most outstanding of Persian epics. Since he avoided Arabic words, his work is among the first Persian writings consisting almost entirely of Farsi vocabulary.

Sufic poetry also ascended and reached its pinnacle during this time. Rūmī was considered Islam's greatest writer. He is also known as a "Supreme Mystic" and great example of Persian mysticism. He was the Sufi of Celebration who celebrated love and the wonders of life. He was known most widely as Moulana, or Our Master. Although he lived during a time of Mongol invasion and destruction, Rūmī

preserved a significant proportion of his civilization's essence by studying the Qur'an, Islam, and his teachers, and by traveling. Sa'dī, also highly acclaimed, is considered the best Persian poet. His narrations had moral and ethical implications and were told in prose as well as verse. Ḥāfiẓ another great master, wrote in the 14th century CE and was known as the greatest *ghazal* writer of all time. Among all the poets of Iran, his poetry made the most skillful use of the widest varieties of poetic techniques.

By the end of the 15th century CE the Persian language and literature had spread to India and influenced the language and literature of Muslims living there. This led to the creation of a new Indian language called Urdu, which descended from Indo-Aryan (Sanskrit). With these two languages, the Mughals created their own civilization and rich culture that in turn influenced Persian literature. The Persian language and its literature contributed unprecedented treasures to the Islamic tradition of literary arts.

Chapter Thirteen

The Arts

Two most beautiful monuments in Spain exemplify the arts of Islam: the Great Mosque of Cordoba and Alhambra in Granada. These buildings are open, bright, colorful, and magnificent, rich in arabesques and calligraphy and geometric designs. The Qur'an emphasizes beauty in many places.⁴¹ Muslims took the beauty that God provided for them and beautified their books of the Qur'an and their mosques, creating a uniquely Islamic visual design. In the Muslim world today one sees rich designs and decorations, and beautiful calligraphy, book illustrations, miniature painting, and illuminated manuscripts. The arabesque with geometric design is the most distinctive Islamic aesthetic form.

Muslims continued handiwork from the centuries before Islam, especially in carpets, which were now available to all with an increase in materials and production. Mosque interiors were soon covered in carpets and nomads used them in their travels as portable household goods. The prayer rug was the most widespread use of the carpet all over the Muslim world. At the start of the European Renaissance, carpets were among the most desired of products from the Muslim world. They were appreciated for their rich designs and were included in paintings from leading European artists.

In the area of ceramics and glass, Muslims reinvented the practice of tin glazing, which, when introduced in Europe, became a dominant technique of Western pottery. Muslims also added the use of metallic glaze to create luster and multi-colored pottery. Muslim luster techniques entered Europe through Spain and Italy. Italy bought glazed pottery, and ceramic plates to decorate its churches, from the Muslim world for three centuries. The Muslim world was likely the only civilization in the Middle Ages to produce glass and rock crystal works of high artistic quality. Glass was common in practical application and as decoration. Another technique, enameling, was used with or without gold.

The connoisseur, coming to Muslim art, takes the most delight in Islamic miniature painting at its finest, as demonstrated in the Persian, Mughal, and Turkish miniatures. Their detail is meticulously and exquisitely rendered. The miniature paintings also feature the other Islamic arts, such as buildings, calligraphy, gardens, carpets, and clothes. Much wealth went into their making, with brilliant colors and use of gold and precious stones.

Music has survived from almost the start of Islamic times and prevails in every Muslim region, including the Hijaz where Islam originated. Muslims accepted and continue to accept "the art of sound"⁴² and the Prophet paid special attention to Qur'an recitation. The earliest Muslim "music" going back to the first Caliphs was vocal. Recitals, mostly improvisations, emphasize the voice alone, without words. Music belongs to local cultures and since the Muslims did not interfere with the customs of the people they encountered in their expansion, music was left alone. The local sound of music is clearly evident in traditional indigenous songs, melodies, and instruments.

Arabic calligraphy, like architecture, is an important art form in the Muslim world. Early copies of the Qur'an were written in a slanting script, and the Qur'anic script developed in Makkah and Madinah in the first Islamic century, initiating calligraphy as an art form.⁴³ Various styles of script came to be used in various media and also decorated buildings. Allah has also been the focus of the most various styles and characters. The genius of the Muslim artists, especially those of the early years of Islamic history, who were its originators, is also strongly reflected in the development of geometric design seen in the arabesque. The mosque encompasses all of Islam's other arts, especially calligraphy and the arabesque.⁴⁴ Architecture is the art of Islam and deserves

recognition accordingly. The Prophet's mosque in Madinah was the prototype of all Islamic buildings of worship, fashioned with a dome and minaret.

Chapter Fourteen

Ottoman Contribution to Islamic Civilization

The Turkic people, especially the Ottomans, left their imprint on the formation and maturation of Islamic civilization in its later period, particularly in art and architecture, where Ottoman styles interacted with the Byzantine and European Renaissance. The Muslim Turkish Emirates brought many features and innovations to Islamic architecture, creating a new type of minaret peculiar to the Muslim world and different from early Islamic rectangular minarets. This combination of a dome with monumental cubic space was an innovation. In their homeland in Central Asia, the Turks lived in dome-like tents that later influenced Turkish architecture and ornamental arts. During the Seljuk era, a consistent emphasis on the dome as the main architectural feature created the necessary visual unity to integrate a building with its surroundings. The artistic blend generated vitality and creativity that were uniquely Ottoman. Their language was Turkish but also enriched with sophisticated Persian and Arabic poetic narrative tradition and vocabularies.

The Ottoman Empire paid special attention to mosque building since the mosque continued to play an important role in the Ottoman state and society. The fall of the city of Constantinople in 1453 CE marked the start of a profound Byzantine influence on Ottoman art and architecture. The influence is credited to Sultan Mehmet II and Sulayman the Magnificent, as well as the pre-existence of numerous religious and secular buildings, including the Hagia Sophia Church, which the Ottomans inherited from the Byzantine Empire. After the conquest, the church was transformed into an imperial mosque and became a source of inspiration for Ottoman architects. Centrally planned domed sanctuaries appeared in Italy and the Ottoman Empire, attributed partly to the concurrent revival of a mutual Romano-Byzantine architectural heritage.

The Ottoman world power spanned three continents until the 19th century. They were pioneers in their emphasis on free world trade and contributed greatly to the growth of European capitalism. Ottoman

cartographers and writers used the same sources as European Renaissance cartographers, such as the works of classical antiquity, in particular, Ptolemy's *Geography*.⁴⁵

In many respects the Ottoman Empire was a Muslim successor to the earlier Mediterranean empires of Byzantium and Rome, so the Ottomans regarded themselves as the heirs to both Roman and Muslim traditions. Similar to the Abbasid Caliphate, the Ottoman civil state was cosmopolitan and a blend of many cultures. The *millet* system divided the empire into semi-autonomous communities based on religious affiliation. The Ottoman religious tolerance⁴⁶ and sensibility were reflected in architecture, mosque building, and colleges. Their unique ties to Islam were ever-present and their preference and patronage of the arts was widely influential.

The Ottomans also inherited a rich mixture of political traditions from disparate groups, as well as from Islam. The sultan, modeled on the just ruler concept found in Turco-Persian and Islamic history, had a primary function to protect his people from the excesses of government, such as taxation and corruption. As a result, the tolerance displayed by the Ottomans was welcome to immigrants such as the large Jewish population from Spain that settled in Istanbul.⁴⁷ This cultural fusion also caused the Ottomans to both influence and be influenced by the Renaissance in Europe, via intellectual and artistic exchange.

Chapter Fifteen

Islamic Impact on the Renaissance

Europeans, who most wanted to destroy Islam and the Muslim world, benefited most from the achievements of Islamic civilization, especially in the areas of science and medicine. Further, the Mongols, who devastated the Muslim world and whose help the Crusaders sought to destroy Islam, went on to convert to Islam and extend Islamic civilization for several more centuries. They also were responsible for creating Mughal India, another Muslim state, which together with Safavid Iran and Ottoman Turkey, kept Islamic civilization alive until the coming of European colonizers.

Islamic society strongly influenced science, medicine, philosophy, and literature in Europe. Medical practice in Europe was largely based on

Islamic medicine and using wisdom of Jewish and Muslim doctors. Western medicine was for many centuries the continuation of Islamic medicine. There was a continuation in the West of learning from the Muslims, despite the verbal denial of deriving knowledge of medicine from the Muslim world. Islamic medicine did receive literary endorsement in the English-speaking world via Chaucer and Shakespeare.

Muslim knowledge entered the West through academic centers in Spain and Italy, and ideas permeated during the Crusades and via translated documents. A number of authorities also argue that Europe received Greek philosophy from the Islamic civilization. The commentaries of Muslim scholars were pivotal, and the Muslims went further in basing their thinking on a very close connection between philosophy and medicine. Until the Renaissance and Reformation, Arabic was probably the most widely translated language in the world.

A major proportion of Islamic knowledge entered Europe through Muslim Spain, which for centuries was more like a country in the Muslim Middle East. Many non-Muslims adopted Muslim names, clothes, and customs, and used Arabic in public and private life. Muslim, Jewish, and Christian students, including Charlemagne, traveled to study at the Islamic universities in Spain.

In the 12th century CE, five hundred years after the emergence of Islam, translation of Arabic works into Latin began there, including popular literature but mostly in science, medicine, and philosophy. By the close of 13th century CE, Arabic science and philosophy had been transmitted to Europe. Still, Christian Europe was reluctant to recognize Islamic learning and tended to attribute content origins to the Greeks.

Philosopher Al-Fārābī helped the West in its quest for knowledge, and Muslims, Jews, and Christians studied his works to understand the intricacies of philosophy.⁴⁸ Al-Fārābī's influence on Western thought was considerable, as was his Islamic contribution to Christianity. His works based on the Qur'an influenced both Albertus and Thomas Aquinas, and his works were used to reconcile Aristotle and Islamic philosophy with Christianity.⁴⁹

Literature was a major area of influence by Islamic civilization in the West. During the Middle Ages and Renaissance, Arabic literature was the main area of outside influence on the Christian world. Also, during its first thousand years, Islam was revealed to Europe almost

exclusively through Arabic literature. Yet Western distortion of Islamic teaching began during the Crusades and afterward. Having failed during the Crusades, Christians tried to gain the Mongols as allies in order to destroy the Muslim world and eliminate Islam. Yet all civilizations, including the West, have benefited from the achievements of the Islamic civilization, and Islam exerted a large cultural impact on Christendom.

For these reasons, translations from Arabic to European languages, as well as the enormous learning that the West acquired from the Muslims, whether as an addition to or as a conveyer of Ancient Greek and Eastern sciences, were the important contributions to the Renaissance and the development of modern Western civilization.

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AHMED ESSA died on June 15, 2008 and Dr. Othman Ali helped to produce the final manuscript of his work *Studies in Islamic Civilization*. Dr. Essa was a professor at the University of Nevada, Reno, from 1967 to 1991, teaching multicultural literature and creative writing. He was known for his expertise in African and Middle Eastern literature. Born in India, he spent his early years in Pietermaritzburg and Durban, South Africa. His experiences growing up in apartheid South Africa gave him much of the inspiration for his creative writing. Dr. Essa was also the founder of the Northern Nevada Muslim Society, bringing the group from its early days of a few members in the 1960s to an organization that includes several thousand today. In 2003, he received the World Citizen Award from the Northern Nevada International Center for "linking Nevada and its culturally diverse population with people nationally and internationally."

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Studies in Islamic Civilization draws upon the works of Western scholars to make the case that without the tremendous contribution of the Muslim world there would have been no Renaissance in Europe. For almost a thousand years Islam was arguably one of the leading civilizations of the world spanning a geographic area greater than any other. It eliminated social distinctions between classes and races, made clear that people should enjoy the bounties of the earth provided they did not ignore morals and ethics, and rescued knowledge that would have been lost, if not forever, then at least for centuries. The genius of its scholars triggered the intellectual tradition of Europe and for over seven hundred years its language, Arabic, was the international language of science. Strange then that its legacy lies largely ignored and buried in time. **Studies in Islamic Civilization** is a compelling attempt to redress this wrong and restore the historical truths of a "golden age" that ushered in the Islamic renaissance, and as a by-product that of the West.

John Esposito, University Professor & Director of the Prince Alwaleed Bin Talal Center for Muslim-Christian Understanding, Georgetown University, USA

Studies in Islamic Civilization is a must-read for scholars, students and non-specialists alike, demonstrating the world class civilization created by Muslims and its forgotten and long-overlooked contributions to Western civilization.

Charles E. Butterworth, Emeritus Professor, University of Maryland, USA

All those interested in a broad, general account of Islamic civilization, one that is accurate and arises from deep familiarity with the major events of that civilization as well as with the writings of those who most contributed to its flourishing, will find themselves indebted to the story told by Ahmed Essa in *Studies in Islamic Civilization* and thus to Dr. Othman Ali for helping bring Ahmed Essa's work to light. For too long, the story of Islam's origins and great contributions to human learning has been told by persons unwilling to conceptualize these events sympathetically and from the perspective of how they affect human beings such as themselves – to understand such phenomena fully, in other words. Ahmed Essa and Dr. Othman Ali explain here what that fuller understanding entails, and for this we must all be grateful.

Dr. Douglas Johnston, President and Founder, International Center for Religion and Diplomacy, USA

This book does a highly effective job of capturing the pioneering breakthroughs in the arts and sciences – including religious freedom – that took place under Islam a thousand years ago. I strongly urge Westerners to read it, so they can give law-abiding Muslims their just due for these remarkable contributions to modern civilization. By the same token, I urge all Muslims to read it, with an eye toward making similar contributions in the future.